

1. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_4(2x + 5) + 4 = 3$$

- A.  $x \in [-2.34, -1.45]$
  - B.  $x \in [29.26, 29.94]$
  - C.  $x \in [-2.97, -2.09]$
  - D.  $x \in [2.93, 3.12]$
  - E. There is no Real solution to the equation.
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2. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$11 = \ln \sqrt[3]{\frac{19}{e^{8x}}}$$

- A.  $x \in [-1.6, -1]$
  - B.  $x \in [-3.7, -2.2]$
  - C.  $x \in [3.5, 4.7]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
- 

3. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x + 7) + 7$$

- A.  $(-\infty, a), a \in [-7, -5]$
  - B.  $[a, \infty), a \in [6, 8]$
  - C.  $(-\infty, a), a \in [6, 8]$
  - D.  $[a, \infty), a \in [-7, -5]$
  - E.  $(-\infty, \infty)$
-

4. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x-6} + 2$$

- A.  $(a, \infty), a \in [-3, 0]$
  - B.  $(-\infty, a], a \in [2, 5]$
  - C.  $[a, \infty), a \in [-3, 0]$
  - D.  $(-\infty, a), a \in [2, 5]$
  - E.  $(-\infty, \infty)$
- 

5. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$5 = \ln \sqrt[7]{\frac{30}{e^{6x}}}$$

- A.  $x \in [4.27, 8.27]$
  - B.  $x \in [-3.44, -1.44]$
  - C.  $x \in [-2.1, 1.9]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
- 

6. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+4} - 3$$

- A.  $[a, \infty), a \in [2, 7]$
  - B.  $(-\infty, a], a \in [-11, -2]$
  - C.  $(-\infty, a), a \in [-11, -2]$
  - D.  $(a, \infty), a \in [2, 7]$
  - E.  $(-\infty, \infty)$
-

7. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$3^{-3x-3} = \left(\frac{1}{343}\right)^{-2x-5}$$

- A.  $x \in [1, 3]$
  - B.  $x \in [-33.48, -29.48]$
  - C.  $x \in [-2.17, -0.17]$
  - D.  $x \in [-1.87, 1.13]$
  - E. There is no Real solution to the equation.
- 

8. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 1) + 4$$

- A.  $(-\infty, a), a \in [-5.5, -1.1]$
  - B.  $[a, \infty), a \in [-1.1, -0.3]$
  - C.  $(-\infty, a), a \in [3.7, 8.4]$
  - D.  $[a, \infty), a \in [0.7, 1.3]$
  - E.  $(-\infty, \infty)$
- 

9. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$4^{-4x+5} = 27^{-2x-2}$$

- A.  $x \in [-13.92, -10.92]$
  - B.  $x \in [-6.69, -3.69]$
  - C.  $x \in [0.5, 4.5]$
  - D.  $x \in [4.76, 8.76]$
  - E. There is no Real solution to the equation.
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10. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_4(2x + 5) + 6 = 3$$

- A.  $x \in [25.5, 31.5]$
  - B.  $x \in [42, 46]$
  - C.  $x \in [-3.49, 3.51]$
  - D.  $x \in [37, 41]$
  - E. There is no Real solution to the equation.
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11. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_4(3x + 7) + 6 = 3$$

- A.  $x \in [28.33, 32.33]$
  - B.  $x \in [22.67, 27.67]$
  - C.  $x \in [-5.33, -0.33]$
  - D.  $x \in [19, 23]$
  - E. There is no Real solution to the equation.
- 

12. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$9 = \ln \sqrt[3]{\frac{21}{e^{9x}}}$$

- A.  $x \in [-2.05, -1.13]$
  - B.  $x \in [-2.79, -2.34]$
  - C.  $x \in [-1.6, -0.88]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
-

13. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x + 5) + 1$$

- A.  $(-\infty, a), a \in [-1.1, 0.5]$
  - B.  $[a, \infty), a \in [-5.1, -1.3]$
  - C.  $(-\infty, a), a \in [0.6, 1.9]$
  - D.  $[a, \infty), a \in [3, 5.2]$
  - E.  $(-\infty, \infty)$
- 

14. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x+6} - 9$$

- A.  $(-\infty, a), a \in [-15, -5]$
  - B.  $[a, \infty), a \in [6, 12]$
  - C.  $(-\infty, a], a \in [-15, -5]$
  - D.  $(a, \infty), a \in [6, 12]$
  - E.  $(-\infty, \infty)$
- 

15. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$16 = \sqrt[5]{\frac{25}{e^{9x}}}$$

- A.  $x \in [0.5, 1.6]$
  - B.  $x \in [-0.4, 0]$
  - C.  $x \in [-10.8, -7.4]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
-

16. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-2} + 6$$

- A.  $(-\infty, a], a \in [3, 7]$
  - B.  $(-\infty, a), a \in [3, 7]$
  - C.  $[a, \infty), a \in [-9, 4]$
  - D.  $(a, \infty), a \in [-9, 4]$
  - E.  $(-\infty, \infty)$
- 

17. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$5^{5x-2} = 216^{3x-4}$$

- A.  $x \in [-0.75, 1.25]$
  - B.  $x \in [-2, 0]$
  - C.  $x \in [2.26, 4.26]$
  - D.  $x \in [-13.14, -5.14]$
  - E. There is no Real solution to the equation.
- 

18. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 6) - 6$$

- A.  $(-\infty, a], a \in [3, 7]$
  - B.  $[a, \infty), a \in [-7, -5]$
  - C.  $(a, \infty), a \in [3, 7]$
  - D.  $(-\infty, a), a \in [-7, -5]$
  - E.  $(-\infty, \infty)$
-

19. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$3^{-3x-5} = \left(\frac{1}{343}\right)^{-2x+5}$$

- A.  $x \in [-11, -8]$
  - B.  $x \in [-0.67, 1.33]$
  - C.  $x \in [17.7, 26.7]$
  - D.  $x \in [0.58, 3.58]$
  - E. There is no Real solution to the equation.
- 

20. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_3(4x + 5) + 6 = 3$$

- A.  $x \in [-3.24, 4.76]$
  - B.  $x \in [2.5, 8.5]$
  - C.  $x \in [-8, -7]$
  - D.  $x \in [-7.5, -2.5]$
  - E. There is no Real solution to the equation.
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21. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_2(-2x + 8) + 4 = 3$$

- A.  $x \in [3.7, 3.78]$
  - B.  $x \in [-4.59, -4.19]$
  - C.  $x \in [-0.12, 0.17]$
  - D.  $x \in [3.36, 3.51]$
  - E. There is no Real solution to the equation.
-

22. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$25 = \ln \sqrt[5]{\frac{9}{e^{8x}}}$$

- A.  $x \in [-5.98, -2.98]$
  - B.  $x \in [13.35, 17.35]$
  - C.  $x \in [-3.29, -1.29]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
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23. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x - 2) + 6$$

- A.  $(-\infty, a), a \in [4.6, 6.6]$
  - B.  $[a, \infty), a \in [0.9, 2.9]$
  - C.  $[a, \infty), a \in [-4.7, -1.7]$
  - D.  $(-\infty, a), a \in [-9.9, -3.8]$
  - E.  $(-\infty, \infty)$
- 

24. Which of the following intervals describes the Range of the function below?

$$f(x) = -e^{x+2} - 2$$

- A.  $(-\infty, a), a \in [-7, 0]$
  - B.  $(-\infty, a], a \in [-7, 0]$
  - C.  $[a, \infty), a \in [0, 5]$
  - D.  $(a, \infty), a \in [0, 5]$
  - E.  $(-\infty, \infty)$
-



25. Solve the equation for  $x$  and choose the interval that contains  $x$  (if it exists).

$$12 = \sqrt[3]{\frac{12}{e^{3x}}}$$

- A.  $x \in [-1.86, -1.15]$
  - B.  $x \in [-13.34, -12.38]$
  - C.  $x \in [-1.4, -0.25]$
  - D. There is no Real solution to the equation.
  - E. None of the above.
- 

26. Which of the following intervals describes the Domain of the function below?

$$f(x) = -e^{x-2} + 7$$

- A.  $(-\infty, a], a \in [1, 8]$
  - B.  $(-\infty, a), a \in [1, 8]$
  - C.  $(a, \infty), a \in [-7, -3]$
  - D.  $[a, \infty), a \in [-7, -3]$
  - E.  $(-\infty, \infty)$
- 

27. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$5^{2x+5} = \left(\frac{1}{9}\right)^{3x+4}$$

- A.  $x \in [0.9, 2.6]$
- B.  $x \in [16.4, 18]$
- C.  $x \in [-1.1, 0.2]$
- D.  $x \in [-3.3, -1.3]$
- E. There is no Real solution to the equation.

28. Which of the following intervals describes the Domain of the function below?

$$f(x) = -\log_2(x - 8) + 3$$

- A.  $(-\infty, a), a \in [-10, -7.3]$
  - B.  $(-\infty, a], a \in [-5.4, 0.1]$
  - C.  $(a, \infty), a \in [7.7, 11.6]$
  - D.  $[a, \infty), a \in [-0.2, 3.5]$
  - E.  $(-\infty, \infty)$
- 

29. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$2^{2x-2} = \left(\frac{1}{343}\right)^{3x-5}$$

- A.  $x \in [2.9, 3.2]$
  - B.  $x \in [-31.8, -30.1]$
  - C.  $x \in [0.1, 1.7]$
  - D.  $x \in [-0.6, 0.9]$
  - E. There is no Real solution to the equation.
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30. Solve the equation for  $x$  and choose the interval that contains the solution (if it exists).

$$\log_2(-2x + 6) + 4 = 2$$

- A.  $x \in [0.59, 1.84]$
- B.  $x \in [1.64, 4.82]$
- C.  $x \in [0.59, 1.84]$
- D.  $x \in [-6.08, -3.89]$
- E. There is no Real solution to the equation.

